

ABSTRACT

This invention provides a dripping nozzle device to produce ADU particles with good sphericity, a device for recovering a feedstock liquid to prepare a uniform feedstock liquid, a device for supplying a feedstock liquid to form drops with a uniform volume, a device for solidifying the surfaces of drops so that the drops will not deform easily when they fall onto and hit the surface of an aqueous ammonia solution, a device for circulating an aqueous ammonia solution so that the uranyl nitrate in the drops can be changed to ammonium diuranate completely, to such an extent that uranyl nitrate in the center of each drop is changed to ammonium diuranate, and an apparatus for producing ammonium diuranate particles with good sphericity.

The dripping nozzle device is provided with a single vibrator to vibrate nozzles simultaneously. The device for recovering a feedstock liquid recovers the feedstock liquid remaining in the nozzles and mixes it with a fresh feedstock liquid. The device for supplying a feedstock liquid is provided with a light irradiator for irradiating falling drops with light. The device for solidifying the surfaces of drops sprays ammonia gas over each of the paths along which the drops dripping from the nozzles fall. The device for circulating an aqueous ammonia solution enables drops to flow upward in the aqueous ammonia solution in the aqueous ammonia solution reservoir. The apparatus for producing ammonium diuranate utilizes these devices.